VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the issuance of the VPDES permit listed below. This permit action is the initial issuance of a permit for a facility that has not yet been constructed. The permit is being issued with three design flow tiers. The facility will initially be constructed and operated as a minor , municipal facility. At the two higher flow tiers, the facility will be a major municipal. For administrative and public participation purposes, this permit is being processed as a major, municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The discharge results from the operation of a publicly owned sewage treatment plant. (Part II language, revising special conditions to reflect current guidance, and adding new effluent limitations.) SIC Code: 4952.

1. **Facility Name:** Amelia Courthouse Sanitary District STP – Smacks Creek
   Address: County of Amelia
   P.O. Box A
   Amelia, VA 23002

   Location Intersection of Smacks Creek and Route 627

2. **Permit Number** VA0091707
   Existing Permit Expiration Date: NA – New Facility

3. **Owner Contact**
   Name: Mr. Thomas Harris
   Title: County Administrator
   Telephone No: 804-561-3039

4. **Application Complete Date:** June 2, 2008 with receipt of nutrient offset letter
   Permit Drafted By: Jaime Bauer, Piedmont Regional Office
   Reviewed By: Emilee Carpenter **Date:** October 2, 2007
   Reviewed By: Ray Jenkins **Date:** November 19, 2007

   Public Notice Dates: First Publication Date: March 12, 2009
   Second Publication Date: March 19, 2009
   Public Comment Period: March 12, 2009 through 4 pm April 13, 2009

5. **SCC Certification Verification as required by Section 62.1-44.15:3 of the State Water Control Law:** Applies only to privately owned treatment works. The proposed facility is municipally owned.

6. **Financial Assurance/Closure as required by 9 VAC 25-650-10:** Applies only to privately owned treatment works and does not apply to design flows greater than 40,000 gallon per day. The proposed facility is municipally owned and is designed to have a greater flow than the financial aid threshold.

7. **Name:** Smacks Creek
   Basin: Appomattox River
   Subbasin: None
   Section: 5c
   Class: III
   Special Standards: NEW-2
   River Mile: 2-SMK006.70

7-Day, 10-Year Low Flows:	0.039 MGD	0.06 cfs
1-Day, 10-Year Low Flows:	0.032 MGD	0.05 cfs
30-Day, 5-Year Low Flows:	0.149 MGD	0.23 cfs
30-Day, 10-Year Low Flows:	0.084 MGD	0.13 cfs
7-Day, 10-Year High Flows:	0.633 MGD	0.98 cfs
1-Day, 10-Year High Flows:	0.56 MGD	0.86 cfs
30-Day, 10-Year High Flows:	0.94 MGD	1.45 cfs
1-Q30 Flows	0.006 MGD	0.01 cfs
Harmonic Mean Flow:	None	
High Flow months:	December through April	
Tidal:	No	
On 303(d) List:	Yes	

See Flow Frequency Memo dated September 9, 2005 (**Attachment 1**)

8. **Operator License Requirements**: Class II
(9 VAC 25-790-300)

9. **Reliability Class**: Class II (**Attachment 9)**
(9 VAC 25-790-70)

10. **Permit Characterization:**

___ Private ___ Federal ___ State **X** POTW ___ PVOTW

___ Possible Interstate Effect ___ Interim Limits in Other Document

11. **Table 1: Wastewater Flow and Treatment**

Outfall Number	Discharge Source	Treatment	Flow Design Capacity Tiers
001	Proposed residential with some commercial development	Grit Removal Unit, Mechanical Screen, Anoxic Tank, Aeration, Clarifier, Filters, UV disinfection, Post Air. Sludge: Extended – Air Activated Sludge Process, Aerobic Digesters, Belt Press.	0.999 MGD 2.0 MGD 3.0 MGD

(See **Attachment 2** for facility diagram of all design capacities)

12. **Sewage Sludge Use or Disposal**:
Dewatered sludge solids will be trucked to Maplewood Recycling and Waste Disposal Landfill weekdays between the hours of 8 AM and 4 PM. See **Attachment 3** for the proposed haul route.

13. **Discharge Location Description***:*
The facility will discharge to Smacks Creek. See **Attachment 4** for the Amelia Courthouse Topo map, 101-C**.**

14. **Material Storage**:
This is a proposed facility; therefore material storage information is not available at this time. A condition has been included requiring that materials be handled and stored in a manner to prevent accidental release into the environment.

15. **Ambient Water Quality Information**:
Ambient water quality data is complied from station 2SMK002.57, located on Smacks Creek approximately 4 miles downstream of the proposed discharge. The monitoring station was selected upon the advice of J. Palmore, Senior Environmental Planner, DEQ Piedmont Regional Office. See **Attachment 5** for monitoring data.

16. **Antidegradation Review & Comments:**

Tier 1 _____ Tier 2 X Tier 3 _____

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. The receiving stream, Smacks Creek, is considered to be a Tier 2 water body. This determination is the result of an analysis of the ambient stream data that shows a water quality better than water quality standards. The average dissolved oxygen and pH concentrations are 9.94 mg/l and 6.98 S.U., respectively, with no pH values outside the range of 6.0 to 9.0 S.U. The Aquatic Life and Wildlife Uses were assessed as fully supporting and the recreation uses could not be sufficiently determined.

17. **Site Inspection:** On October 6, 2005, Jarad Morton and Jennifer Palmore visited the location of the proposed plant. The visit was conducted in conjunction with the stream assessment used in Jennifer Palmore's Stream Sanitation Analysis. The approximate location of the proposed outfall was observed and no obvious issues were detected. (**Attachment 6)**

18. **Effluent Screening & Limitation Development**: See Table 2-A, 2-B, and 2-C below.
With the help of a consulting firm, the facility performed a site specific modeling exercise to determine water quality based limits under facility specific circumstances. DEQ staff reviewed the site specific modeling and deemed it to be acceptable.

Table 2-A: Basis for Effluent Limitations for 0.999 MGD

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		MONTHLY AVERAGE		WEEKLY AVERAGE		MIN	MAX	FREQUENCY	SAMPLE TYPE
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	T I R E
pH (standard units)	1	NA		NA		6.0	9.0	1/Day	Grab
E. coli (N/100 mL)	1	126		NA		NA	NA	3 Days /Week Between 10AM and 4PM	Grab
Total Suspended Solids (TSS)	2	30 mg/L	110 kg/d	45 mg/L	170 kg/d	NA	NA	1/Month	8 HC
$cBOD_5$ (May – Nov)	3	5.0 mg/L	19 kg/d	7.5 mg/L	28 kg/d	NA	NA	3 days/week	8 HC
$cBOD_5$ (Dec – Apr)	4	7.0 mg/L	26 kg/d	10 mg/L	39 kg/d	NA	NA	3 days/week	8 HC
Total Kjehldahl Nitrogen (as N) (May – Nov)	3	3.0 mg/L	11 kg/d	4.5 mg/L	17 kg/d	NA	NA	3 days/week	8 HC
Total Kjehldahl Nitrogen (as N) (Dec – Apr)	4	6.0 mg/L	23 kg/d	9.0 mg/L	34 kg/d	NA	NA	3 days/week	8 HC
Total Nitrogen – Annual Average	5	3.0 mg/L		NA		NA	NA	1/Year	Calculated
Total Nitrogen – Year to Date Monthly Average	5	NL		NA		NA	NA	1/Month	Calculated
Total Phosphorus (as P) – Annual Average	5	0.30 mg/L		NA		NA	NA	1/Year	Calculated
Total Phosphorous (as P) – Year to Date Monthly Average	5	NL		NA		NA	NA	1/Month	Calculated
Dissolved Oxygen (May – Nov)	4	NA		NA		6.9 mg/L	NA	1/Day	Grab
Dissolved Oxygen (Dec – Apr)	3	NA		NA		8.0 mg/L	NA	1/Day	Grab
Ammonia as Nitrogen (May – Nov)	1	0.63 mg/L		0.86 mg/L		NA	NA	3 days/week	Grab
Ammonia as Nitrogen (Dec – Apr)	1	2.6 mg/L		3.5 mg/L		NA	NA	3 days/week	Grab

1. Water Quality Based Limit – Attachment 8
2. Federal Effluent Guidelines (Technology Based Limits)
3. Water Quality Based Limit from Stream Sanitation Analysis for Smacks Creek dated 10/12/05 – Attachment 6
4. Water Quality Based Limit from Site Specific Facility Modeling – Attachment 7
5. Nutrient Regulations and DEQ Related Guidance

Table 2-B: Basis for Effluent Limitations for 2.0 MGD

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		MONTHLY AVERAGE		WEEKLY AVERAGE		MIN	MAX	FREQUENCY	SAMPLE TYPE
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
pH (standard units)	1	NA		NA		6.0	9.0	1/Day	Grab
E. coli (N/100 m L)	1	126		NA		NA	NA	5 Days /Week Between 10AM and 4PM	Grab
Total Suspended Solids (TSS)	2	30 mg/L	230 kg/d	45 mg/L	340 kg/d	NA	NA	1/Month	24 HC
$cBOD_5$ (May – Nov)	4	5.0 mg/L	38 kg/d	7.5 mg/L	57 kg/d	NA	NA	5 Days/Week	24 HC
$cBOD_5$ (Dec – Apr)	4	6.0 mg/L	45 kg/d	9.0 mg/L	68 kg/d	NA	NA	5 Days/Week	24 HC
Total Kjehldahl Nitrogen (as N) (May – Nov)	4	3.0 mg/L	23 kg/d	4.5 mg/L	34 kg/d	NA	NA	5 Days/Week	24 HC
Total Kjehldahl Nitrogen (as N) (Dec – Apr)	4	5.0 mgL	38 kg/d	7.5 mg/L	57 kg/d	NA	NA	5 Days/Week	24 HC
Total Nitrogen – Annual Average	5	3.0 mg/L		NA		NA	NA	1/Year	Calculated
Total Nitrogen – Year to Date Monthly Average	5	NL		NA		NA	NA	1/Month	Calculated
Total Phosphorus (as P) – Annual Average	5	0.30 mg/L		NA		NA	NA	1/Year	Calculated
Total Phosphorous (as P) – Year to Date Monthly Average	5	NL		NA		NA	NA	1/Month	Calculated
Dissolved Oxygen (May – Nov)	4	NA		NA		7.3 mg/L	NA	1/Day	Grab
Dissolved Oxygen (Dec – Apr)	4	NA		NA		7.9 mg/L	NA	1/Day	Grab
Ammonia as Nitrogen (May – Nov)	1	0.53 mg/L		0.67 mg/L		NA	NA	5 Days/Week	Grab
Ammonia as Nitrogen (Dec – Apr)	1	1.8 mg/L		2.2 mg/L		NA	NA	5 Days/Week	Grab

1. Water Quality Based Limit – Attachment 8
2. Federal Effluent Guidelines (Technology Based Limits)
3. Water Quality Based Limit from Stream Sanitation Analysis for Smacks Creek dated 10/12/05 – Attachment 6
4. Water Quality Based Limit from Site Specific Facility Modeling – Attachment 7
5. Nutrient Regulations and DEQ Related Guidance

Table 2-C: Basis for Effluent Limitations for 3.0 MGD

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		MONTHLY AVERAGE		WEEKLY AVERAGE		MIN	MAX	FREQUENCY	SAMPLE TYPE
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
pH (standard units)	1	NA		NA		6.0	9.0	1/Day	Grab
E. coli (N/100 m L)	1	126		NA		NA	NA	1/Day Between 10AM and 4PM	Grab
Total Suspended Solids (TSS)	2	30 mg/L	340 kg/d	45 mg/L	510 kg/d	NA	NA	1/Month	24 HC
$cBOD_5$ (May – Nov)	4	5.0 mg/L	57 kg/d	7.5 mg/L	85 kg/d	NA	NA	1/Day	24 HC
$cBOD_5$ (Dec – Apr)	4	6.0 mg/L	68 kg/d	9.0 mg/L	100 kg/d	NA	NA	1/Day	24 HC
Total Kjehldahl Nitrogen (as N) (May – Nov)	4	3.0 mg/L	34 kg/d	4.5 mg/L	51 kg/d	NA	NA	1/Day	24 HC
Total Kjehldahl Nitrogen (as N) (Dec – Apr)	4	5.0 mg/L	57 kg/d	7.5 mg/L	85 kg/d	NA	NA	1/Day	24 HC
Total Nitrogen – Annual Average	5	3.0 mg/L		NA		NA	NA	1/Year	Calculated
Total Nitrogen – Year to Date Monthly Average	5	NL		NA		NA	NA	1/Month	Calculated
Total Phosphorus (as P) – Annual Average	5	0.30 mg/L		NA		NA	NA	1/Year	Calculated
Total Phosphorous (as P) – Year to Date Monthly Average	5	NL		NA		NA	NA	1/Month	Calculated
Dissolved Oxygen (May – Nov)	4	NA		NA		7.3 mg/L	NA	1/Day	Grab
Dissolved Oxygen (Dec – Apr)	4	NA		NA		8.2 mg/L	NA	1/Day	Grab
Ammonia as Nitrogen (May – Nov)	1	0.49 mg/L		0.59 mg/L		NA	NA	1/Day	Grab
Ammonia as Nitrogen (Dec – Apr)	1	1.4 mg/L		1.7 mg/L		NA	NA	1/Day	Grab

1. Water Quality Based Limit - Attachment 8
2. Federal Effluent Guidelines (Technology Based Limits)
3. Water Quality Based Limit from Stream Sanitation Analysis for Smacks Creek dated 10/12/05 – Attachment 6
4. Water Quality Based Limit from Site Specific Facility Modeling – Attachment 7
5. Nutrient Regulations and DEQ Related Guidance

Basis for Limits

1. Water Quality-Based Limits:

pH: A pH range of 6.0 – 9.0 Standard Units is assigned to all Class III waters per the Virginia Water Quality Standards, 9 VAC 25-260-50. The range is also defined as part of secondary treatment standards found in 40 CFR 133.

Ammonia: Ammonia was analyzed using MIX.exe, MSTRANTI.xls, and STATS.exe. Stream flow and characteristic parameters used for inputs into the MIX.exe application are derived from a combination of Stream Sanitation Analysis (**Attachment 6**) and Flow Frequency Determination (**Attachment 1**) and the Site Inspection of 10/6/2005.

Because this permit is for a proposed facility, there is no existing effluent data for input to MSTRANTI. It is expected that the new plant will replace the existing Amelia Courthouse –Nibbs Creek facility (VA0086681). If there are no additional industrial or commercial businesses that will discharge to the new plant, it is assumed that the effluent characteristics of the existing plant will be similar to that of the new plant. Therefore in the absence of more appropriate data, the effluent pH data from the Nibbs Creek facility was used in MSTRANTI to calculate chronic and acute Waste Load Allocations for Ammonia.

The WLA calculated by MSTRANTI was input into the STATS.exe program along with a QL of 0.20 mg/l (per instruction in GM00-2011). The appropriate TKN permit limits were used as the data point inputs for both low and high flow tiers, for each design capacity to calculate the ammonia permit limits.

See the analysis of ammonia in **Attachment 8**.

E. coli: The disinfection policy in 9 VAC 5-25-260-170 B in the Water Quality Standards requires that all discharges in to freshwater meet 126 count/100 ml for e-coli.

2. Federal Effluent Guidelines (Technology Based Limits)

TSS: Municipal facilities are required to meet secondary treatment requirements. As promulgated in 40 CFR 133, secondary treatment for TSS will meet limits of 30 mg/L for a monthly average and 45 mg/L for a weekly average.

3. & 4. Water Quality Based Limits from Stream Sanitation Analysis for Smacks Creek dated 10/12/2005 (**Attachment 6**) and Site Specific Modeling (**Attachment 7**): $CBOD_5$, TKN, and DO

5. Nutrient Regulations

Part I.A. of the permit contains nutrient limitations based on summary data submitted in the Preliminary Engineering Report (PER) and compliance plan letter dated May 30, 2008 (**Attachment 13**). Monitoring and reporting requirements for the individual components of the nutrients (i.e. NO_3-NO_2, orthophosphate, etc) as well as the monthly average concentrations for total nitrogen were not included as these parameters are already reported on the nutrient general permit DMR. However, TN year-to-date and annual average concentration reporting requirements were included in the individual permit as these calculations are not performed or reported on the nutrient general permit DMR.

The facility is also discharges to a designated a Nutrient Enriched Water (NEW), specifically NEW-2, listed in 9 VAC 25-260-350 of the Virginia Water Quality Standards. As per the VPDES Permit Manual (GM 04-2013), all new discharges to NEW greater than 0.050 MGD must meet a monthly average Total Phosphorus limitation of 2.0 mg/L. The concentration limitation of 2.0 is not included in the Part I.A pages because the technology concentration limitation of 0.3 mg/L is protective of the NEW standard. Total

Phosphorus monitoring is in conformance with NEW parameter monitoring included in the VPDES Permit Manual.

19. **Basis for Sludge Use & Disposal Requirements**
This facility will dispose of dewatered sludge via landfill per the VPDES Sewage Sludge Application Form submitted as part of the application for this permit. A sludge management plan is required according to 9VAC 25-31 100 P, 200 B.2, 420-720.

20. **Antibacksliding Statement**: Not Applicable – This is a proposed facility.

21. **Compliance Schedules**: Not Applicable

22. **Special Conditions:**

B. **Alternative Disinfection - Additional Chlorine Limitations and Monitoring Requirements**
Rationale: If the facility is unable to use UV disinfection, this condition authorizes the use of chlorine. Water Quality Based Effluent Limits for total reduced chlorine for each permitted tier were established using the wasteload allocations from MSTRANTI.xls and STATS.exe. The boilerplate condition was adjusted for multiple TRC limits for the permit tiers.

C.1. 95% Capacity Reopener
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B.1 and 2 for all POTW and PVOTW permits

C.2. Indirect Dischargers
Rationale Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

C.3. CTC, CTO Requirement
Rationale: Required by Code of Virginia ?62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

C.4. O&M Manual Requirement
Rationale: Required by Code of Virginia ?62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190 E.

C.5. Materials Handling/Storage
Rationale: 9 VAC 25-31-50, Section A. prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia Section 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

C.6. Licensed Operator Requirement
Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 C and the Code of Virginia § 54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.), require licensure of operators. Plant operator classification is based on the highest flow tier, 3.0 MGD, plant capacity.

C.7. Reliability Class

Rationale: Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities.

C.8. Reopener

Rationale:

a. Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

b. 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

c. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

d. Required by VPDES Permit Regulation, 9 VAC 25-31-220 C 4 for all permits issued to treatment works treating domestic sewage.

C.9. New Source Monitoring

Rationale: VPDES Permit Regulation, 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of water quality criteria.

C.10. Compliance Reporting

Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

C.11. Sludge Use and Disposal

Rationale: VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B 2; and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal.

C.12. Industrial Pretreatment Program/Significant Discharger Survey

Rationale: VPDES Permit Regulation, 9 VAC 25-31-730 through 900 and CFR part 403 require certain existing and new source of pollution to meet specified regulations.

C.13. Notification of Commencement of Discharge

Rationale: This condition is designed to clarify monitoring and reporting requirements before the commencement of discharge. Inclusion is pursuant to state-wide water permit manager consensus.

C.14. Nutrient Reporting Calculations

Rationale: §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, this special condition is intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

C.15. Suspension of concentration limits for E3/E4 facilities

Rationale: 9 VAC 25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

C.16. Nutrient Offset Requirement

Rationale: The Virginia General Assembly, in its 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

C.17. Reclaim/Reuse Reopener

Rationale: This reopener is included because reclamation and reuse has been proposed by the permittee in response to a request for a compliance plan of offsetting nutrient loading from the proposed facility.

C.18. Facility Closure

Rationale: Code of Virginia § 62.1-44.18:3 of the State Water Control Law establishes the requirement to submit and implement a closure plan for a private wastewater treatment facility if the treatment facility ceases operations. Sewage collection and treatment regulations 9 VAC 25-790 establishes the requirement for all treatment works to submit and implement a closure plan if the treatment facility undergoes new construction or substantial modification.

D. Whole Effluent Toxicity Testing

Rationale: VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.

The facility is being required to collect three years worth of quarterly data for a total of twelve data points to provide enough data to perform an accurate reasonable potential evaluation. Two years of annual data is also being required after the quarterly monitoring is complete. Acute and chronic end points as established using WETLIM10_2005.xls (**Attachment 11**) are included for each operating tier as proposed by the facility. It is assumed that the effluent characteristics will be the same under each design flow tier, therefore the facility will not be required to perform twelve additional tests when operating at each tier.

Part II, Conditions Applicable to All Permits
Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

23. **Changes to the Permit:** Not Applicable – This is a proposed facility.

24. **Variances/Alternate Limits or Conditions**: None

25. **Regulation of Users (9 VAC 25-31-280 B 9):** Not Applicable - The proposed facility is municipally owned.

26. **Public Notice Information required by 9 VAC 25-31-280 B**:
All pertinent information is on file and may be inspected, and copied by contacting:

Ms. Jaime Bauer at:
Virginia DEQ Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
Telephone No. (804) 527-5015
Email Address: jlbauer@deq.virginia.gov

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action.

The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment.

27. **Additional Comments**:

a. **Previous Board Action**: None

b. **Staff Comments:**
- Due to staff turnover, administrative delays, and finalization of a TMDL allocation, this permit is not issued within the 120 days from application complete date.
- In a letter dated December 10, 2008, Virginia DEQ proposed to modify the WLA tables in the TMDL to accommodate permitted flow tiers of 0.99, 2, and 3 MGD at a permitted *E. coli* concentration of 126 cfu/100ml.
- All areas within a 2-mile radius of the proposed outfall were screened to ensure that the discharge from the proposed facility does not pose an impact to State and federally listed threatened and endangered species. The results of queries conducted using the Virginia Department of Game and Inland Fisheries' *Virginia Fish and Wildlife Information Services,* the Department of Conservation and Recreation *Virginia Natural Heritage Data Explorer,* and the US Fish and Wildlife databases did not confirm an impact. The queries can be found in

Attachment 10.

- The draft permit was sent to EPA for review. An email was received on April 2, 2009 from Mark Smith, EPA R3, stating they did not object to the issuance of the permit.

c. **Public Comment: No Comments Received.**

28. **303(d) Listed Segments (TMDL)**:
The bacteria TMDL for Smacks Creek was developed as part of the TMDL for the Appomattox River basin. EPA approved the TMDL on August 30, 2004 and the SWCB approved it on December 20, 2005. Because the facility was proposed after the TMDL was approved, no allocation was given for this facility. The TMDL allocation for this proposed plant at the highest tier of permitted operational capacity of 3.0 MGD was calculated by TMDL staff and falls below the <1% of the TMDL; therefore, the modeling was not required. The public comment period for modification to the TMDL was December 24, 2007 though January 23, 2008 and no comments were received. The facility received a WLA of 5.22E+12 E. coli per year, which is based on an E. coli count of 126 cfu / 100 mL. The permit includes an E. coli limitation of 126 n/100 mL in accordance with the bacteria WLA. The TMDL fact sheet can be found in **Attachment 12**.

29. **Nutrient Requirements**: This facility is registered under the Watershed General Permit Number VAN040105. Coverage under the WGP will be extended upon issuance of this individual permit. All nutrient permit requirements will be addressed in either this individual permit or with approval for coverage under the general permit. The Watershed General Permit allows the aggregation of allocations and permitted design capacities between facilities of common ownership or operation in the same tributary. In addition, the Watershed General Permit also allows a regional discharger who consolidates the treatment of two or more facilities located in the same tributary to assume the waste load allocations or permitted design capacities of those facilities that will no longer be discharging.

The owner has chosen to aggregate the facility's mass load limits for nitrogen and total phosphorus with Amelia Courthouse Sanitary District STP – Nibbs Creek (VA0086681). In addition, the county plants will be regionalized, and the new facility will assume the permitted capacity of the Nibbs Creek plant, thereby only requiring offsets once the CTC/CTO for 2 MGD plant is issued.

Below is a table that shows the permitted design capacity of the Nibbs Creek plant with a design flow of 0.3 MGD:

Pollutant	Design Flow of Plant (MGD)	Concentration (mg/L)	Conversion	day/yr	Load (lb/yr)
Total Nitrogen	0.3	18.7	8.3438	365	17,085
Total Phosphorus	0.3	2.5	8.3438	365	2,284

Below is a table that shows the nutrient load calculations for the Smacks Creek plant at the various tiers:

Pollutant	Flow Tier (MGD)	Concentration (mg/L)	Conversion	day/yr	Load (lb/yr)
Total Nitrogen	0.999	3	8.3438	365	9,127
Total Nitrogen	2	3	8.3438	365	18,273
Total Nitrogen	3	3	8.3438	365	27,409
Total Phosphorus	0.999	0.3	8.3438	365	913
Total Phosphorus	2	0.3	8.3438	365	1,827
Total Phosphorus	3	0.3	8.3438	365	2,741

Based on the calculations above, after assuming the permitted design capacity from the Nibbs Creek plant, the facility will need not need to offset nitrogen loading when operating in conjunction with a CTO for the 0.999 MGD. The permitted design capacity from the Nibbs Creek plant covers the Smacks Creek facility nutrient loading up to 1.87 MGD for nitrogen. The permitted design capacity of the Nibbs Creek plant will cover the total phosphorus loads up 2.5 MGD; and therefore phosphorus offsetting is not required when the plant is operating in accordance with the 0.999 ad 2.0 MGD CTO. The facility has submitted a compliance plan stating that they intend to use reclamation and reuse to offset nutrient loading when required. See **Attachment 13**.

30. Summary of Attachments:

1. Flow Frequency Memo
2. Process Diagrams
3. Sewage Sludge Proposed Haul Road
4. Topo Map
5. STORET Data
6. Stream Sanitation Memo
7. Site Specific Modeling
8. Ammonia Analysis
9. VDH Review Memo & Reliability Class Determination
10. Threatened & Endangered Species Query
11. WETLIM10_2005.xls Spreadsheets
12. TMDL Fact Sheet
13. May 30, 2008 Nutrient Compliance Plan Letter